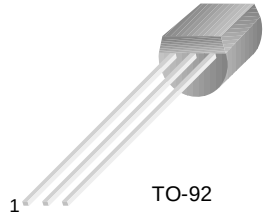
FAIRCHILD
SEMICONDUCTOR®

TIS73/TIS74

N-Channel General Purpose Amplifier

- This device is designed for low level analog switching, sample and hold circuits and chopper stabilized amplifiers.
- Sourced from process 54.



TO-92

1. Gate 2. Source 3. Drain

Absolute Maximum Ratings * T_A=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{DG}	Drain-Gate Voltage	30	V
V_{GS}	Gate-Source Voltage	-30	V
I_{GF}	Forward Gate Current	10	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ +150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1. These ratings are based on a maximum junction temperature of 150 degrees C.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Electrical Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Test Condition		Min.	Typ.	Max.	Units
Off Characteristics							
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	I_G = 1.0μA, V_{DS} = 0		-30			V
I_{GSS}	Gate Reverse Current	V_{GS} = 15V, V_{DS} = 0				-2.0	nA
		V_{GS} = 15V, V_{DS} = 0, T_a = 100°C				-5.0	μA
I_D(off)	Drain Cutoff Leakage Current	V_{DS} = 15V, V_{GS} = -10V				-2.0	nA
		V_{DS} = 15V, V_{GS} = -10V, T_a = 100°C				-5.0	μA
V_{GS}(off)	Gate-Source Cutoff Voltage	V_{DS} = 15V, I_D = 4.0nA	TIS73	-4.0		-10	V
			TIS74	-2.0		-6.0	V
On Characteristics *							
I_{DSS}	Zero-Gate Voltage Drain Current *	V_{DS} = 15V, V_{GS} = 0	TIS73	50			mA
			TIS74	20		100	mA
r_{DS}(on)	Drain-Source On Resistance	V_{DS} ≤ 0.1V, V_{GS} = 0	TIS73			25	Ω
		f = 1.0KHz	TIS74			40	Ω
Small Signal Characteristics							
C_{iss}	Input Capacitance	V_{DS} = 0, V_{GS} = -10V, f = 1.0MHz				18	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 0, V_{GS} = -10V, f = 1.0MHz				8.0	pF
Switching Characteristics							
t_r	Rise Time	V_{GS}(off) = -10V, V_{GS}(on) = 0,					
		I_D = 20mA, V_{DS} = 10V	TIS73			3.0	ns
			TIS74			4.0	ns
t_{on}	Turn-On Time	$V_{GS(off)}$ = -10V, V_{GS}(on) = 0,					
		I_D = 20mA, V_{DS} = 10V				6.0	ns
t_{off}	Turn-Off Time	V_{GS}(off) = -10V, V_{GS}(on) = 0,					
		I_D = 20mA, V_{DS} = 10V	TIS73			25	ns
			TIS74			50	ns

* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 3.0%

Thermal Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

Typical Characateristics

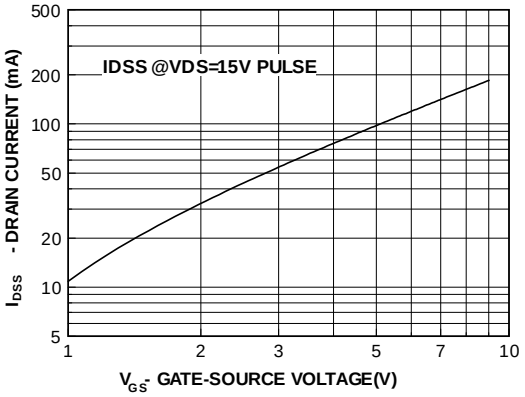


Figure 1. Transfer Characteristics

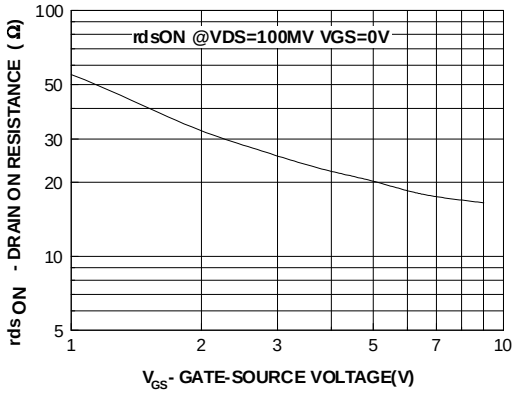


Figure 2. Transfer Characteristics

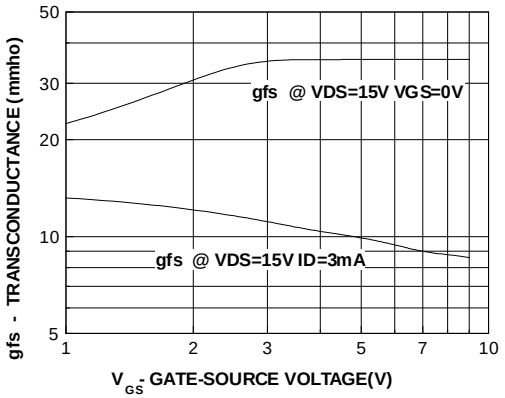


Figure 3. Transfer Characteristics

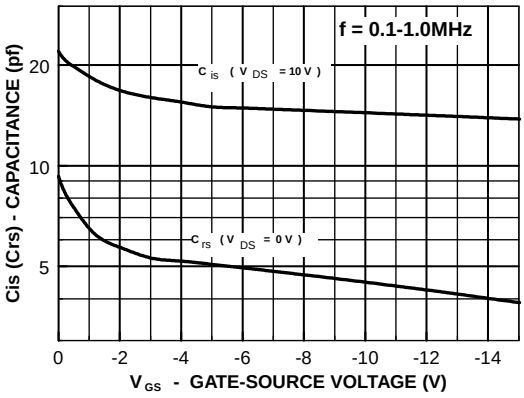


Figure 4. Capacitance vs Voltage

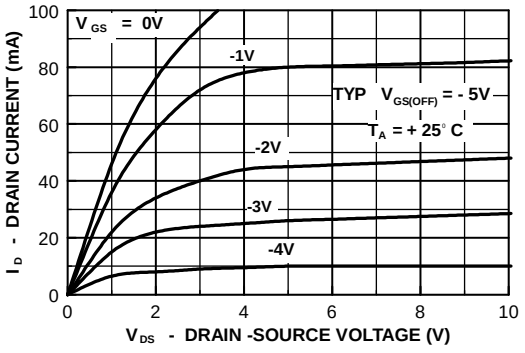


Figure 5. Common Drain-Source Characteristics

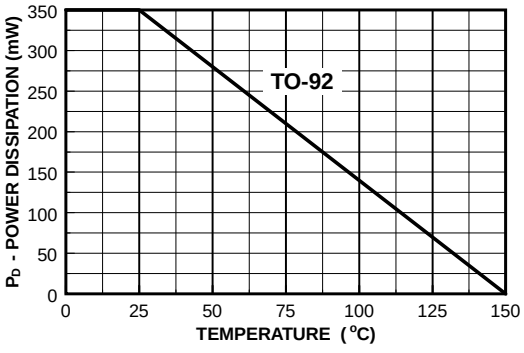
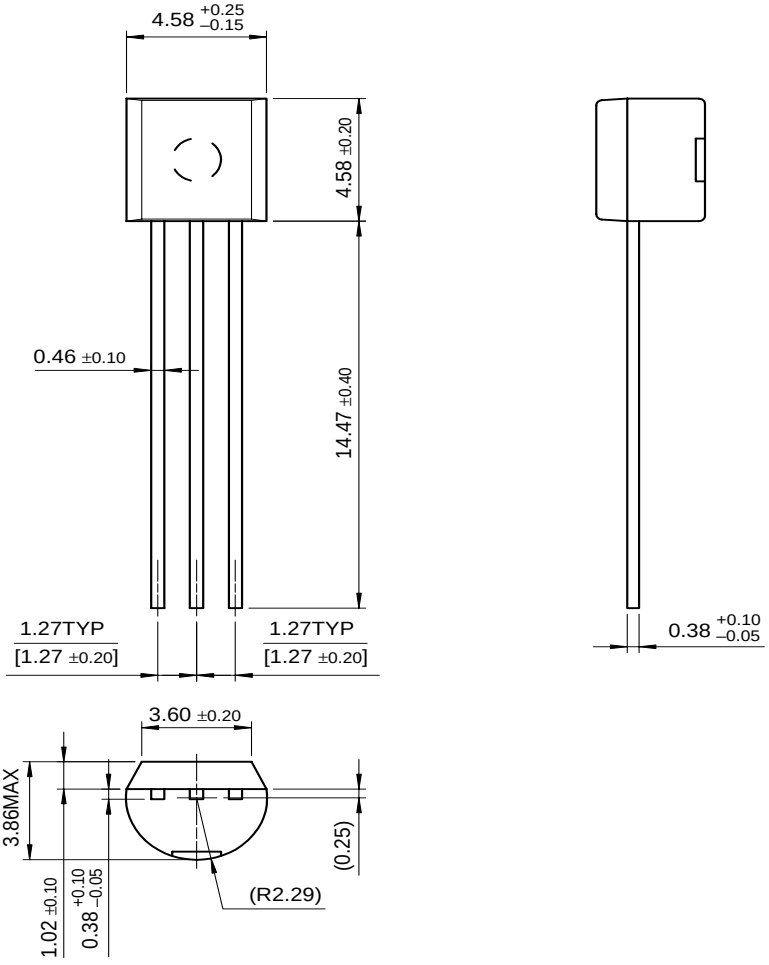


Figure 6. Power Dissipation vs Ambient Temperature

Package Dimensions

TO-92



Dimensions in Millimeters

TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACEx™	FACT™	ImpliedDisconnect™	PACMAN™	SPM™
ActiveArray™	FACT Quiet series™	ISOPLANAR™	POP™	Stealth™
Bottomless™	FAST®	LittleFET™	Power247™	SuperSOT™-3
CoolFET™	FASTr™	MicroFET™	PowerTrench®	SuperSOT™-6
CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
DOME™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic™
E^2CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	I^2C™	OCX™	RapidConfigure™	UHC™
Across the board. Around the world.™		OCXPro™	RapidConnect™	UltraFET®
The Power Franchise™		OPTOLOGIC®	SILENT SWITCHER®	VCX™
Programmable Active Droop™		OPTOPLANAR™	SMART START™	

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.